MONTHLY JOURNAL OF
THE MUSHROOM GROWERS'
ASSOCIATION

MGA
BULLETIN

FEBRUARY, 1957 · NUMBER 86

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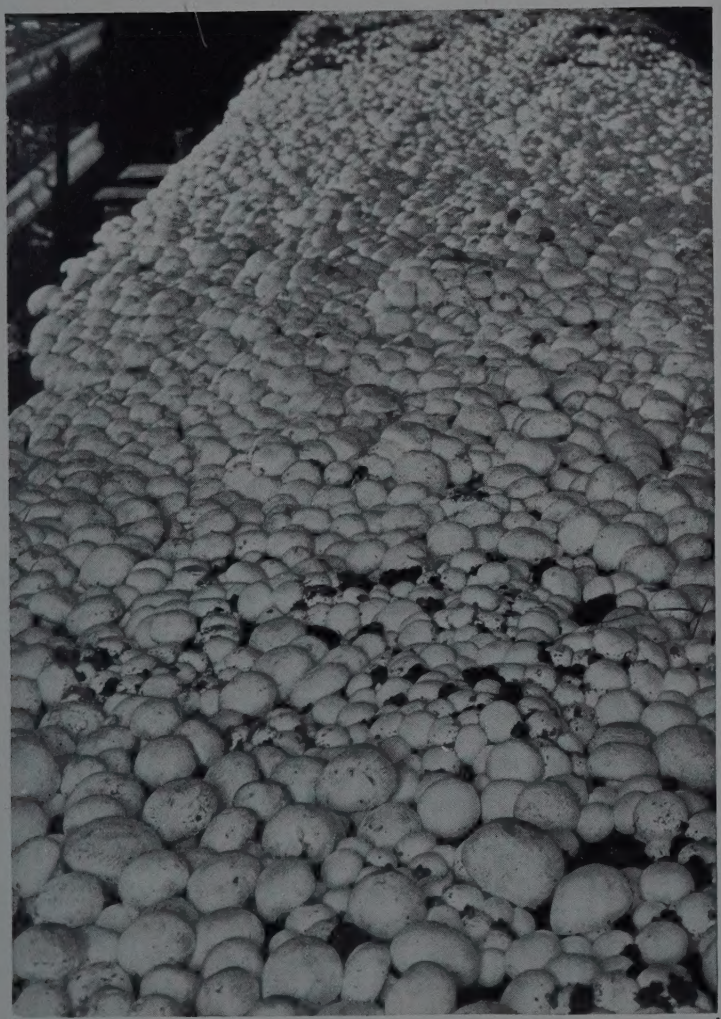

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EDITORIAL

FACE THE FACTS

The news that the Linfield organisation is to step up its production from 5 million to 7½ million lb. of mushrooms annually, will come as something like a bombshell to producers in this country, for this additional 2½ million lb. represents an overall increase in the total U.K. production of 16%.

It would be folly, little short of criminal, if the growers did not see in this increase a real and live threat to their independent existence, but it would be folly, far, far worse if the challenge was not accepted.

In America two gigantic mushroom enterprises produce between them 20 million lb. of mushrooms per year, the bulk of them in the cooler months, for the majority of American producers do not grow mushrooms all the year round.

There is not one tittle of evidence to show that these two large American concerns have put a large number of smaller growers out of business. Rather has the success of these two giants spurred the smaller men to greater efficiency and thus cut down the costs of production.

This is the challenge put out in this country by Messrs. Linfield—a challenge which must be faced and must be met, for this is an age of progress and few if any will criticise Messrs. Linfield in their desire to go forward.

That there is room for more efficient production at lower costs is inescapably true—not on this and that farm, but on many farms up and down the country.

As Mr. J. A. Linfield states elsewhere in this issue, the efficient grower has little or nothing to fear. It is the inefficient grower who must look to his laurels, and that without any delay.

I repeat, this increased production is a challenge to all and I for one believe that it can and will be met; but it will not be met by adopting an ostrich like attitude in refusing to face the facts. WRA.

7½ MILLION LB. PER YEAR

Linfield's Plan 50% Increase in Production

With the purchase of Lyons Farm, Worthing, with its 6¾ acres under glass and 140 acres of land, Messrs. A. G. Linfield Ltd., of Thakeham, Sussex, plan to reach a target of 7½ million lb. of mushrooms per year within the next year or so.

This staggering figure is an increase of up to 2½ million lb. and represents an overall increase of about 16% of cultivated mushrooms which will be appearing on the fresh market, based on the present annual production figure for the United Kingdom of 40 million lb. per year.

The immediate question which will spring to the mind of growers is just what effect is this huge and unexpected increase likely to have on the market price returns. *It may well mean a drop in price.*

Increased publicity may perhaps cushion the blow to producers but it is extremely doubtful whether, on the present scale of publicity contributions, a campaign of sufficient magnitude could be launched.

Already Messrs. Linfield produce nearly 5 million lb. of mushrooms from 500,000 sq. ft. of bed area, all on the tray system, from their several nurseries in Sussex, all centred on the main concern at Thakeham, which was visited by MGA members last July and where efficiency, not only in mushroom production but in the many other branches of this concern, roses, carnations, tomatoes, lettuce, pigs, poultry, etc., was apparent to everyone.

Lyons Farm Nurseries was finally acquired on 15th December last and some of the glasshouses, equipped with temporary insulation, were put into immediate production with compost and trays supplied from Thakeham, 11 miles away. Mushrooms were actually sent to market from here as early as 7th January, only 23 days after the nursery was taken over!

This additional nursery at Worthing, with the glasshouses in tip-top condition, is beautifully laid out for mushroom production. The glass is confined in blocks of one acre. The first is going into immediate production, the second acre is planned for September and the third for December.

The compost will all be made at Thakeham where the compost yard will be increased in area to meet this new demand and a new composting machine will bring the total number of these machines—they turn 200 tons of manure in eight hours—to three.

Three pasteurising houses, each capable of dealing with 10,000 sq. ft. at a time, are in the course of erection at Lyons Farm and spawn running rooms are being built adjoining each pasteurising house. Fork lift trucks will again be one of the main hinges on which the mechanisation of this new project will function.

Efficiency, efficiency, efficiency—that is the cry! Already members are aware what that means at Thakeham, but even the Thakeham undertaking will have to give the best to Lyons Farm, for what mistakes have been made at Thakeham will not be repeated.

Mr. J. A. Linfield, Managing Director of Messrs. A. G. Linfield Ltd., and a member of the MGA Executive Committee, showed me round this new nursery and explained exactly what was being done and what it is hoped to do in the immediate future. Everywhere was hustle and bustle with the insides of the glasshouses being completely renovated and the hot water pipes raised from floor level to about 6 ft. up. Glass wool insulation was being placed in position over the glass roofs, covered with roofing felt and finally wire netting. Paint, containing its DDT repellent, was being applied inside and out, concrete floors were being rapidly laid, the coal fired boilers were at full strength—" They are quite efficient, but we shall change them over to oil firing as soon as possible," said Mr. Linfield—and work was about to commence on the removal of an orchard.

Feature of the already installed heating system on this entire nursery is its dual purpose—it can heat by hot water or can cook out by live steam using the Linfield circulators—surely a prophetic installation by the previous owners.

This application of live steam is an important point bearing in mind that, on this new farm Messrs. Linfield plan to produce no less than $6\frac{1}{4}$ crops per year with an eight week cycle. Immediately after cropping each house will be steamed out for 24 hours, it will be completely cleared the following day and completely filled the third day. This cropping time table will be achieved partly with the aid of the spawn running rooms. Only three men will be required to fill 10,000 sq. ft. in one $8\frac{1}{2}$ hour day, with the trays being transported on a self lift truck and two men stacking. The large doors at each end of the house will enable the truck to drive right in and deposit the trays exactly where required. Each week 30,000 sq. ft. of new beds will be laid on this nursery alone.

" Six and a quarter crops a year is a very high target, but by introducing these new methods we shall manage," said Mr. Linfield.

Already the Linfield organisation produces 5,000 bacon pigs a year and much of the mushroom compost comes from the pigs. The production of pigs, and of course manure, is to be doubled this year to meet the new demand from Lyons Farm. Part of this pig increase will be housed at Lyons Farm. Once mushrooms have been produced, the used compost will be spread on the adjoining farm land completing the circle from pig to mushroom and eventually to improving the land.

The additional 140 acres at Worthing will mean that Messrs. Linfield now farm approximately 1,000 acres in Sussex.

Asked what he thought the effect would be of this new production on the market and its effect too on other and smaller mushroom growers,

Mr. J. A. Linfield said: " I think it may mean a drop in price but that, in my view, may well be to the good in the end. It should lead to increased consumption. The drop too, should not seriously affect the efficient growers—and there are a good many. Indeed, they may feel inclined to go ahead with their plans for expansion and bring down their costs of production further. With the growers who are not very efficient it may well be a different story and they may be inclined to halt any expansion they'd planned." He felt too that the future prospects for the industry were excellent, again for the efficient producers. Is any further expansion planned? " Not for some time at any rate," replied Mr. Linfield.

Do you think publicity can help with the absorption of this increased production? " Yes, most certainly. As soon as there is enough money in the kitty I think the I.T.V. field might be explored. Television advertising seems to be having a tremendous impact."

And finally to the 64,000 dollar question : Just why do you keep on expanding? " Well, there are scores of examples of business undertakings getting to the top, standing still and then going rapidly down hill. In the world to-day one must go forward or one is bound to slip back. We have a number of schemes for marketing other than fresh mushrooms, but they must take their turn."

In charge of the Lyons Farm undertaking is Mr. David Rucklidge, who has been at the Thakeham nurseries for the last eight years. With him as mushroom manager is Mr. J. Green, whilst in charge of the glasshouse crops (other than mushrooms) is Mr. Tom Baines, who returned some time ago from America. Some of the staff at Lyons have been recruited from Messrs. Linfield's Sompting Nurseries, only about a mile away.

A number of Italian girls are employed on the various nurseries and several more are on their way. They live in a hostel, a spacious country house bought specially for the purpose. There, every possible effort is made to make the employees comfortable.

At Ashington, on the London-Worthing road, Messrs. Linfield recently opened a most attractive roadside shop in which the firm's many horticultural products are on sale. Mushrooms, fresh, pre-packed and canned, are a quick selling line. WRA.

" BY ROYAL APPOINTMENT TO HER MAJESTY THE QUEEN "

Aylesbury Mushrooms Ltd., of Ford, nr. Aylesbury, owned by Mr. J. Stewart-Wood, former MGA and MRA Chairman, appeared in the list of Royal Warrant holders published on 1st January. The firm can now use the style " By Royal Appointment to Her Majesty The Queen."

This is the first indication that mushrooms are favoured in the Royal household.

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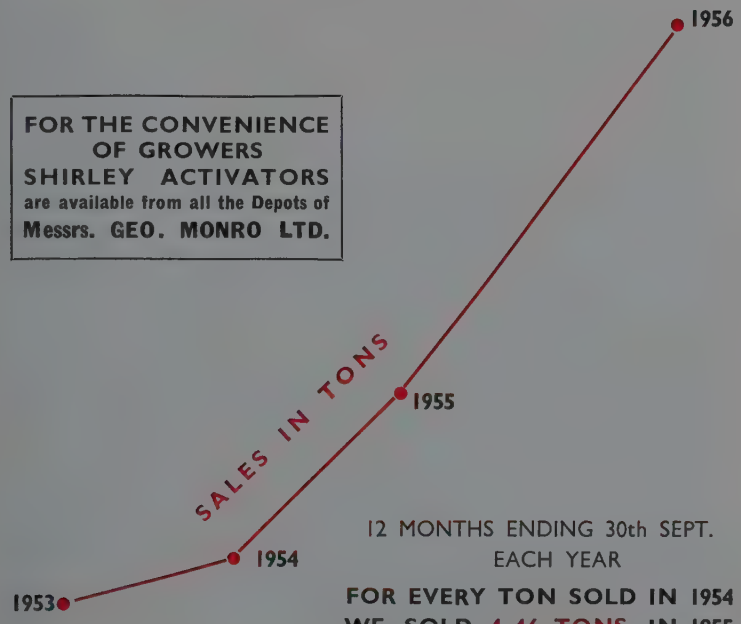

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MUSHROOM MARKETING IN THE U.S.A.

By ROBERT L. BULL, *University of Delaware, U.S.A.*

The marketing of all food products in the United States is undergoing drastic changes. Large self-service supermarkets are rapidly growing in number and importance in food retailing. To-day, an estimated 92 per cent. of all retail food sales are made by the self-service method. Nearly 75 per cent. of the supermarkets even sell fresh produce on a self-service basis. The number of items handled in each of our large food stores has risen from less than 1,000 around 1930 to as many as 5,000 in 1955. More consumers are buying food on impulse to-day, and fewer people use shopping lists made up at home. Other major changes are occurring at the wholesale level.

New developments such as these are beginning to affect greatly our mushroom marketing practices. This era of self-service merchandising requires that our food products sell themselves, so to speak, and better quality control and improved packaging are required. Unfortunately, research and educational work for mushroom growers has been directed almost exclusively to production problems. Only since about 1954 have colleges and trade associations given emphasis to mushroom marketing.

Discolouration

The mushroom industry recognizes as its most serious problem the discolouration, or darkening, which takes place rapidly after harvest. Cap surfaces and the cut surfaces of the stems are particularly susceptible. Discoloured mushrooms are very difficult for retailers to sell, and many mushrooms have to be marked down in price if not sold during the first day they are on display; sometimes it becomes necessary to discard them. As a result, some retailers are reluctant to handle mushrooms at all, and others will handle them only at the end of the week when sales are highest.

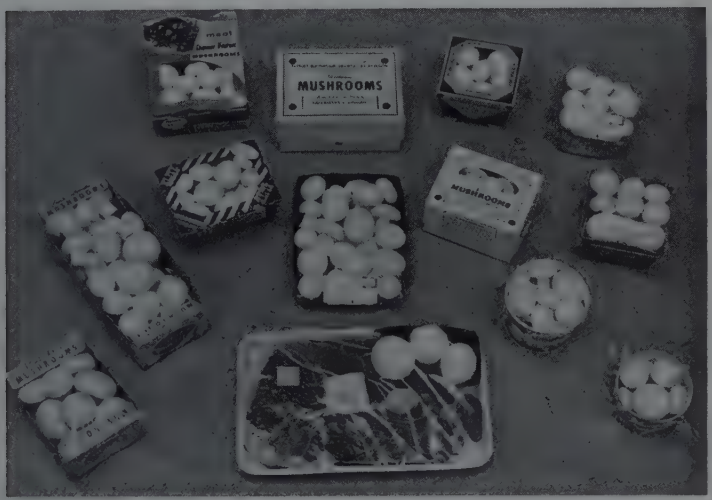
A research project dealing with mushroom discolouration was established in July of last year at the University of Delaware under joint sponsorship with the American Mushroom Institute. Some of the most promising treatments developed thus far soon will be tested in the actual market channels. It is hoped that treatments to prevent discolouration of fresh-market mushrooms also will be suitable for mushrooms destined for canneries. Colour is an important quality characteristic of canned mushrooms too, especially when they are packed in glass jars.

Packaging

The three-pound wooden basket has been the standard fresh mushroom container for many years in the eastern United States. As self-service retailing has become important, more and more attention is being given to prepackaging. Many styles of consumer-unit containers have been developed for prepackaging at the grower—or shipper—level. A few retailers prepackage at the store-level in transparent bags or in cardboard trays overwrapped with cellophane. Most of the containers used in prepackaging are shown in the accompanying photograph.

It seems likely that eventually all fresh mushrooms sold through retail stores will be prepackaged. Consumers will thus be able to shop easier and faster, brand identification will be possible, recipes to stimulate greater use can be printed on the carton, and retailers can sell mushrooms with less labour cost. Some of the consumer-unit containers, such as for tray overwrap, improve visibility of the product. Purple, or other contrasting colours, can be used by the container manufacturer to make the mushrooms stand out with more " eye appeal." *Many containers, such as the pint pulpboard carton, lend themselves well to the " pick and pack " system of harvesting*, for mushrooms can be cut and placed right in the containers as they are removed from the beds. This method promises to aid in reducing packaging costs since it eliminates the need for a repack operation before shipment. While some prepackagers use a " face pack," with mushrooms arranged by hand with the cap up, others are switching to a ramble or jumble arrangement to further reduce packaging expense.

Restaurants and other institutions probably will *continue to buy mushrooms in the three-pound baskets* since packaging in smaller units is of no advantage to the bulk users.



Some types of Prepacks in use in the U.S.A.
In the centre (foreground) mushrooms are shown with Beef Steak.

Merchandising Fresh Mushrooms

The special effort which goes into making self-service displays effective " salesmen " is referred to as merchandising. Some signs at the point of sale, attractive display arrangements and unusual selling ideas all contribute to a complete merchandising programme. Last year the first formal mushroom merchandising study was made and one result was that 25 *per cent. sales increases sometimes are realized*

simply by putting a row of fresh mushroom cartons in retail meat display cases as well as in the produce cases. This project was carried out by Pennsylvania State University in co-operation with the U.S. Department of Agriculture. Many other new merchandising methods are being tried out informally by certain retail stores. It is hoped that other college research projects will provide objective evaluations of some of these methods soon. Importance of colour contrast in packaging is one question needing study. Whether the size of the prepackage unit should be varied when the price level changes is another. Some merchants feel, for example, that while an 8 ounce package sells best when prices are moderately high, perhaps a 12 ounce or 16 ounce package size should be used to maximize sales when prices are lower. Random or scattered displays of mushroom containers in meat cases, and the combination steak-and-fresh-mushroom package are other possibilities for increasing sales.

Canned Mushroom Merchandising

Canned mushrooms are sold in nearly all grocery stores of any size. Many stores offer a complete line of sliced and whole buttons, stems and pieces, mushroom steak sauce and soup. The first merchandising study involving canned mushrooms was completed last year by the National Canners' Association. *In a " laboratory " of ten supermarkets it was found that mushrooms ranked second only to tomato products in dollar sales per foot of shelf space in a comparison of* 18 *canned vegetables.* Because mushrooms normally are sold on a much higher margin than tomato products, it is probable that they are the *most profitable of all canned vegetables for the retailer.* It is hoped by the mushroom industry that this fact will encourage retailers to take more interest in merchandising mushrooms because of their profitability. Perhaps another good result will be for retailers to reduce their profit margins on mushrooms in the interest of greater volume.

New retail selling ideas pertaining to canned mushrooms are being considered by the trade, but little experimental work has been done so far. Glass packs look promising in some areas. Cardboard sleeves for holding three or four cans together may be tried to increase multiple-unit sales to consumers. Some of these other locations for mushroom displays within the store may be tried in addition to the canned vegetable section where most mushrooms are located now; the gourmet or fancy food section; above the meat counter; in the spice and condiment section; and with prepared foods that are usually displayed together.

Other Market Outlets

Frozen foods offer other possibilities for expanding the total mushroom market. Technical problems in freezing have so far prevented the successful introduction of the frozen mushroom pack. Mushrooms are being marketed frozen in other forms however, as in chicken à la king, frozen steak dinners and Chinese specialities. No doubt other mushroom products will be developed.

Some growers are able to sell a substantial portion of their production directly to consumers at roadside stands, usually at a much

MOUNT MUSHROOM SPAWN

Gore Lane, Gorefield,
Nr. Wisbech, Cambs.

J. E. R. Simons Ltd.,
Harlow,
Essex.

8th August, 1956.

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Yours faithfully,

Sgd. W. Sleight.

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greater gross profit. Most state colleges, such as the University of Delaware, provide roadside selling handbooks with tips on successful retailing at the farm.

Consumer Promotions

The final step in the marketing programme is consumer promotional work done by the growers' organization, the American Mushroom Institute, and by the Mushroom Canners' League. Work of the Institute, dealing with both fresh and canned, has been carried out through food editors, food commentators on radio and television, and teachers. The many merits of mushrooms have been called to the attention of the public on television and radio and in magazines and newspapers in many parts of the country. Results in terms of increased consumer demand have been most encouraging.

A Look Ahead

Improvements are being made constantly in marketing methods and the industry seems to be on the threshold of some major changes. The quality of the product, the way it is packaged, and the way it is merchandised will all be better in the years ahead. With the current emphasis on convenience in food preparation in this country, I believe the next generation may even see fresh mushrooms pre-sliced for the consumer and packaged in clear plastic with an anti-oxidant to prevent darkening. Fresh-precooked mushrooms are another possibility for the distant future. Promotional programmes are expanding the market too.

CORRESPONDENCE

MALATHION

To the Editor . . . . . .

I should like to call your attention to an advertisement which appeared in last month's issue of the *Bulletin*. This advertisement claimed that several insecticides, including Malathion, had been found unsatisfactory for the control of Phorid Flies. I am sure that many of your readers who are at present using Malathion formulation will be quite unable to accept this claim. The truth is that Malathion is extremely effective against Phorids, Sciarids, Mites and other pests of mushrooms, is one of the safest insecticides to handle, and is used extensively by mushroom growers in all parts of the world.

R. F. W. HOLLIDAY,

Agricultural Chemicals Division Cyanamid of Great Britain Ltd., Bush House, Aldwych, London, W.C.2.

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WORLD'S PRESS DIGEST

Several improvements designed to make it easier to obtain the correct weight quickly . . . . . have been incorporated in the Mark II model of the Novo-pak produce packaging machine, made by Novotechnics Ltd., Jubilee Road, Letchworth, Herts. A manually adjustable control knob has been fitted to each weigher unit so that the operator can vary the instant at which the conveyor belt is stopped relative to the swing of the scale pointer . . . . . For mushrooms, the conveyor is not stopped until the scale pointer has swung almost to the zero mark . . . . . Price of the semi-automatic produce packer is £410. Like the Mark I Novo-pak it can fill punnets and cartons as well as bags . . . . . Novotechnics Ltd. have also introduced an independently powered hopper elevator for feeding produce to the Novo-pak (£180).

Packaging News, Dec./56.

Harald Stridsberg, of Lockarp, member of the MGA and chairman of the Swedish Mushroom Growers, won the gold medal for mushrooms in the Tradgards Fruit and Flower Show.

Tradgards Varlden, Sept. 25/56.

Pre-packaging of fruit and vegetables (and not least among them, mushrooms) grew steadily during the year.

Bill Sandford in *Fruit Trades' Journal*, Dec. 29/56.

Experiments at Fernhurst have shown that plants slowed in their growth by strong salt concentrations (low pC) are those which produce fruits of the highest quality. *Grower*, Dec. 22/56.

The Venticult quarter bushel box carrier, made by Mr. Jack Cross and marketed at 4/6 by Silverdale Box Supplies Ltd., of Oakwood Road, Burgess Hill, Sussex, has been designed to speed up the picking of mushrooms and tomatoes. It is provided with a clip device so that the whole carrier and box will clip to the side of the tray or shelf when picking mushrooms. *Commercial Grower*, Dec. 28/56.

Mushroom trade is slow (just before Christmas), with supplies in excess of immediate market demand. *Fruit Trades' Journal*, Dec. 22/56.

Despite official pronouncements that horticulture would not be included in any customs union scheme, there are still some pretty healthy doubts about it in the industry. The chairman of the NFU Central Horticultural Committee, E. H. Gardener, appears to have them.

Nurseryman & Seedsman, Dec. 20/56.

A new water-repelling wood preserver on the market is claimed to minimize the swelling and contraction of timber. It is said that this new sealer reduces the absorption of water by wood by as much as 85 per cent. ("Cuprinol Sealer"—Ed.).

B. & G. Technical Review, Nov.-Dec./56.

The Tomato & Cucumber Marketing Board's Journal recently had a most interesting account of a system of soil heating with ordinary galvanised wire netting which has been introduced by the Netherlands

Institute of Horticultural Engineering . . . . . Wire netting has the advantage that it provides a ready-made heating element.

B. & G. Technical Review, Nov.-Dec./56.

Cheaper and more adequate containers for distribution of horticultural produce are required, and the Ditton Laboratory (of the Food Investigation Board, D.I.S.R.) is collaborating with Printing, Packaging and Allied Trades' Research Association on this problem . . . . . Examination of produce wrapped in transparent films have been made; these included an investigation into the effects of humidity and temperature on the behaviour of mushrooms.

Food Investigation, 1955.

Work on the submerged culture of edible fungi has continued. *Coprinus comatus* has been found to grow better on organic than inorganic nitrogen sources. Possible supplies of organic nitrogen which could be used economically are being investigated, as are the problems involved in growing this fungus on a pilot-plant scale.

Food Investigation, 1955.

Although Middlebrook and Storey's paper on " Observations on Cropping in Three Types of Mushroom House " suggests that " the optimum volume of air required would appear to be about 6 cu. ft. per sq. ft. of bed space," . . . . . are their conclusions valid to-day? Remember they arose from heavy or light-and-heavy-mixed horse-manure, not " short composted," that the peak heat was not then regarded as an integral part of the composting process, that the spawn was manure and ran more slowly and cropped much longer at a less exhausting pace than the spawns of to-day, and that instead of peat the casing was soil.

F. C. Atkins in *Nurseryman & Seedsman*, Dec. 20/56.

A guide for growers who suffer from weedkiller spray drift has been drawn up by Essex NFU, and will probably be circulated shortly by the NFU. *Grower*, Dec. 15/56.

With the continual increase in mushroom production in the Worthing Area, spent compost is being used more and more for manuring of market garden crops . . . . . The main points which cause trouble are the use of insecticides in the compost, which are liable to cause taint, and the spreading close to the mushroom-growing houses of spent compost which may not have been thoroughly steamed or heated, so that infections can spread back into the mushroom houses.

Grower, Dec. 15/56.

I have worked out the relative costs (since fuel prices rose following the Suez blockage). The heavy oil is now comparable with hand-fired coal, and medium and light oils are dearer than hand-fired coal . . . . . Already there has been a small increase in the price of coal.

E. R. Hoare in *Grower*, Dec. 15/56.

Mount's sterilized spawn was put on the market in 1930. Mr. F. Allnutt, manager, of the mushroom department for the last 24 years, is always on the look-out for new varieties, and Littlebourne is now

turning out white, cream and brown varieties in eight different strains.
Grower, Dec. 15/56.

Dr. Henry Klaunberg, a nutritional adviser for the U.S. armed forces, is writing a pamphlet on the nutritional value of mushrooms . . . . A comprehensive bibliography of the edible mushroom is in preparation.
AMI News, Nov./56.

Approximately 75 million pounds of cultivated mushrooms are grown in the United States, Eastern Canada and the beautiful Fraser Valley of British Columbia. *AMI News*, Nov./56.

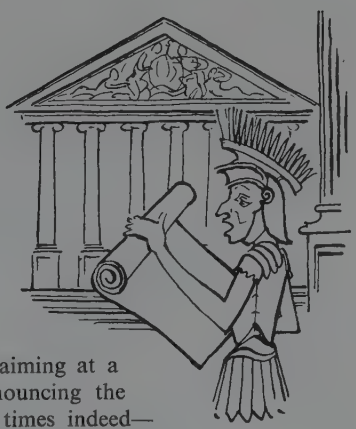
Mushroom growing concentrates on the big cities in the western part of the Soviet Union. There has been a change from adapted premises to specially erected house. There is a demand for the establishment of spawn laboratories; experiments have already demonstrated that spawn from tissue culture is by no means inferior to that obtained from spores. Modern houses are of brick or stone. The shelf system is most commonly used, with composts made from horse-manure, although synthetics are being considered. A moisture content of 50 per cent. and the addition of 2 kg. of ammonium sulphate at filling are recommended. Casing materials include topsoil and topsoil mixed with decomposed manure, all sterilized. In some houses a crop of $1\frac{1}{2}$ lb./ft. is attained over a cropping period of four to five months.
V. Kindt in *German Horticulture*, Dec. 3/56.

Current investigations are exploring whether and how far eelworms may be responsible for reduced mushroom yields. The author has already found Rhabditus, Diplogaster, Cephalobus, Jotonchium and Ditylenchus. A density of 5,000 to 10,000 eelworms per gram of composted manure has been recorded.
A. Dieter in *German Horticulture*, June 3/56.

Mushroom growing during the Winter months is expanding throughout the German Democratic Republic. Horse manure is used for the compost, and the casing materials include sand, peat and turf soil (2 : 3 : $2\frac{1}{2}$), peat and sand (4 : 6), and stored turf soil to which has been added 10-20 kg. of carbonate of lime per ton.
D. Pflug in *German Horticulture*, June 3/56.

Rainfall is likely to affect the atmospheric spora in several ways: (1) Rainfall probably increases spore germination, mould colonization, mycelial growth and conidia production. (2) It washes spores out of the air, so decreasing atmospheric concentrations, and in source areas reducing the number of spores available for wide aerial dissemination. (3) Heavy or prolonged rainfall may wash spores off conidiophores, reducing the number becoming airborne. (4) Prolonged absence of rain, by killing crops, provides additional food material for mould colonization.
Merfyn Richards in *Transactions of British Mycological Society*, Dec./56.

If the compost depth is reduced to under five inches the yield is usually affected to an uneconomic extent.
Robert Patterson in *Commercial Grower*, January 4/57.



"O Tempora! O Mores!" *

Cicero *might* have been declaiming at a Farm Walk, instead of denouncing the Cataline conspiracy! What times indeed—a mushroom grower's life is nothing but a protracted schedule. He composts in 10 or 20 days, he pasteurises for 2 days. He crops for 6 weeks or 16—and when it comes to testimonials for 100% Productive Spawn, then it's 1 lb. in so many days or 3 lb. in ten weeks!

And—talking of customs—Cicero might well find some odd ways of doing the job, that have been handed down from father to son since Roman times. Every grower has his own ideas about the right way to cultivate mushrooms!

In searching for something enduring in those troubled times, how Cicero would have longed for a bedrock like 100% Spawn. At least growers to-day have *that* to fall back on, as the world appears to tumble about *their* ears!

* *What times! What customs!*

FOR ALL METHODS OF GROWING

DARLINGTON'S 100%

PRODUCTIVE, PURE CULTURE
MUSHROOM SPAWN
Gives the best results!

Rhubarb production in the West Riding is certain to show a substantial drop. A big slice of the growing area has gone for open-cast coal mining or has been lost to local authorities for development schemes. One of the worst sufferers is Mr. Harold Stead of Rothwell, near Leeds ..... He has no definite plans. He says: " We shall have to carry on somehow—I don't know how. Probably we shall have to turn to something else." *Grower*, January 5/57.

Linfields, the noted growers of Thakeham, Sussex, have opened a roadside kiosk as an extra outlet for their market products. It is at Ashington, on the London-Worthing (A24) road ..... Mushrooms are a big line. Linfields have their own prepackaging plant, and mushrooms are sold in sealed quarter-pound packages. They are also canned at Linfields' own canning factory at Thakeham. Creamed mushrooms, mushrooms and rice, mushrooms and macaroni are three favourites in tins. *Grower*, January 5/57.

Peat is being increasingly used for electricity generation by Eire's Electricity Board who are now taking 400,000 tons annually. New stations under construction or projected number 15, of which nine are designed for peat firing. *Business*, January/57.

Premier Supermarkets' latest self-service store at Kingston was opened recently. In the refrigerated display were ..... mushroom stalks (polythene, 8d.). *Produce Packaging*, January/57.

It pays to prepack mushrooms, to the extent of 6d. per lb. more profit. This has been proved in one year's trading by Major Allan Dredge, a mushroom grower with 17,000 square feet of beds at Combe Bank, Sundridge, Kent. Expansion of his prepacking is restricted at present by the difficulty of continuity of supply. He intends to increase the number of mushroom beds on his farm—and if three or four mushroom growers would join him, Major Dredge would be willing to start central prepackaging in order to give continuity.
Produce Packaging, January/57.

Further experiments have been continuing in America in mixing insecticides with fertilizer. One firm has developed a satisfactory method of mixing, based on research carried out by Dr. Lilly of Iowa State College. ..... (but) BHC he has found incompatible with the usual range of fertilizers. *B. & G. Technical Review*, Nov.-Dec./56.

References:

AMI News, 20 West State Street, Avondale, Pennsylvania, U.S.A.
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Fruit Trades' Journal, 6/7 Gough Square, Fleet Street, London, E.C.
Grower, 49 Doughty Street, London, W.C.1.
Mushroom News, W. Darlington & Sons Ltd., Southcourt Road, Worthing, Sussex.
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Produce Packaging, Agriculture House, Knightsbridge, London, S.W.1.
Transactions of the British Mycological Society, Cambridge University Press, Bentley House, London, N.W.1.

If the journals referred to are generally available, they are most easily obtained by placing an order with your bookseller or stationer.

FEBRUARY IS THE SECOND MONTH

but

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GUERNSEY, SPALDING, WORTHING
CHELTENHAM, SWANWICK

165. The measure of compactness of a farm might well be estimated by the time it takes to walk round its boundary. In my case (30,000 sq. ft.) I can leave my arm chair—in the house, not office, mark you!—and after walking round the perimeter be back in the chair in 4 minutes 5 seconds. I may add, to confuse the issue, that because of the particular lay-out it would take no longer if the sq. footage were increased to 54,000. Is this a record?

166. In the theoretical study of serious music composition one must, I understand, learn the art of counterpoint, but on reaching maturity this mathematical method of music making may be forgotten and perhaps even deliberately ignored. Just as with some shorthand one learns a good deal as a beginner which later one goes to a good deal of trouble to forget. Something of the same sort applies to mushrooms. A beginner would be wise to erect his farm and build his private dwelling alongside it and live there for anything up to 10 years. He would thus be in almost hourly contact with everything that happens or has to be done; he would follow the book slavishly and permit no latitude whatever, no variation from set rules. He would put up with and acquire an appreciation of all the noxious smells that emanate from opened-up anaerobic stacks, peak heats, phorid-ridden composts, blood, poultry, or urea-boosted first turns, and so on. He would leave his bed at any hour of wintry nights, pop a handful of coke on his boiler, to raise his temperatures from 59° to 60°. He would stand by his opened ground vents, in three feet of snow, till his temperature fell from 61° to 60°. He would lead an anxious and worried life maintaining a " counterpoint " precision and rigidity without which he could never hope to succeed. He would be convinced there was no other way. After some 10 years he would discover reluctantly or happily—according to his temperament—that there is a considerable latitude in nearly all things and that most of the early rules could be ignored or deliberately broken with advantage. And then he would, if circumstances permitted, build himself a new dwelling house in a salubrious beauty spot some 20 miles away (to guarantee freedom from said noxious smells) and within very broad limits allow mushrooms to grow in their own way rather than in his. He would, I think, find that precision can be abandoned in favour of broader issues. A dangerous statement? Maybe, but as your area grows you can't fiddle furiously with every foot; you're forced to forget finesse whether you like it or not; you haven't the time for it anyway, and, as the American so aptly put it, the graveyard shift comes soon enough.

167. We were discussing the appearance of our composts at the end of cropping. One grower said, " My composts come out looking poetic." I felt sorry for him; that's no way to describe a spent article—or is it?

168. Has live steam a peculiar virtue? Not for what it *does*, but for what it *is?* Many of our composts, being prepared rather quickly,

have the power of peak heating themselves without the aid of supplementary heat or live steam. Sometimes dry heat alone is enough. There seems to be some evidence that where steam is used " live," cropping is better, and this regardless of temperatures achieved in the peak heating process. Is it simply that compost surface moisture is retained when steam is allowed to condense thereon, or is there some other factor?

169. The nearest-to-perfect straw-based compost would have to be prepared in such a way that besides being thoroughly aerated as and when required, the total amount of compost needed for a given cropping unit should be completely mixed together. At present we turn and aerate a stack from one end to the other in comparatively slow stages; there is no possibility of complete stack uniformity. The whole lot should be placed in a colossal drum and thoroughly churned over and over by having the drum revolve and rotate simultaneously in several directions. A nearly impossible job perhaps. (A large *one-way-revolving* drum might be a compromise in an attempt to have *some* of the compost properly inter-mixed.) I admit uniformity would be lost for awhile in the stack, but at each "turn" equality would be resumed. The final " turn " at filling would ensure that everything going into the house was exactly the same. There is no machine to do this yet. The vast Linfield Giant makes time and labour look silly, but at best it only aerates, waters and re-stacks. It does not " mix." The small Hawkins machine is, I think, a step in the right direction, though it is of necessity too small to do anything but work along the stack. A good deal of small-scale mixing does, however, take place as the compost passes slowly through the gently sloping 5′ × 2′ 6″ revolving drum. This drum-plus-elevator-plus-beater/aerator was originally designed, I fancy, to handle and wet up finely chaffed straw—a difficult process by hand or by DLP or ordinary elevator turner—but I doubt if the idea of " mixing " was initially intended or even considered. I may be doing the inventor an injustice there, but however that may be I feel that the greatest value in practice of this comparatively small outfit—small, in relation to the labour-saving Giant—is this capacity for " mixing." It may be I'm entirely wrong, and that peak heating can take care of *all* inequalities, as some would have us believe, but I hope to get a clue fairly soon. By kind permission of Standens of St. Ives I am putting this novel machine through some pretty stiff tests during the next few months. All composts will be divided into two parts, one half done by Hawkomatic and the other by our own normal methods and machines. It will be clear that we are looking rather for improved crops than for any saving of time or labour at this stage.

170. A certain lady, staying at a holiday hotel, found herself listening to a gentleman expanding vociferously on mushroom growing in general and on the size of his own mushroom enterprise in particular. She expressed the opinion that as he was obviously a man of some standing in the industry he must have met a Mr. Atkins " who lives very near me." After a few moments of demonstrably painful thought (or was it memory?) he replied, " No, I *won't* say I've ever heard of him." *Sic transit gloria Atkinsi*, or How are the mighty fallen!

"THANKS BE" . . . . .

By GUY REED (Director of Publicity)

Thanks to *you*, contributors, the publicity drive in the past year, was a resounding success. We can all look back on a year during which Mushrooms have been more talked about, more written about and more thought about by the public, than ever before in this country. Now that is a pretty healthy step towards keeping mushroom consumption in line with the steady increase in production, which might otherwise overwhelm our industry. What is still more satisfactory, is that this development is not due to some fortunate wind that chanced to blow our way. It is due to a definite and sound business decision made by the MGA as a whole (or nearly so) . . . . . and it worked!

The members of our Association, with wise foresight, instructed their Executive Committee to devise a method of raising funds for fostering mushroom publicity. Once this was done, almost 100% of the members immediately agreed to the " spawn " contributions asked of them. (An insignificant few chose to leave it to others, to pay for their share of the benefit they also derive. But many of these have since joined the ranks of those who pay their way. Efforts are being made to win over the few left and to make it 100% co-operation).

You can feel justifiably proud of having blazed a trail in Horticulture. You have not only solved the problem of forming a co-operative publicity fund, which has proved the stumbling block of other produce Associations, but you have achieved thereby concrete results on a scale that has been the surprise and envy of those who have watched our progress.

What did these watchers see in the past year? They saw us double our " spawn " contribution early in the year . . . . . They heard the BBC Radio talks and " mentions " of mushrooms grow quite frequent . . . . . They saw the Television " live " programmes as well as films on mushroom matters . . . . . The evening at the Women's Press Club where some 300 Fleet Street journalists, writers, etc., crowded out the premises, to eat and hear about mushrooms . . . . . Of the farm walk and luncheon for a large group of editors of women's publications who were addressed on the subject of mushrooms by André Simon, the Dean of all gourmets . . . . . The distribution of mushroom recipe leaflets, posters, window stickers and other literature numbering well into six figures . . . . . The mass of publicity in practically all women's publications ranging in space from a few lines giving mushroom recipes up to double page spreads in full colour . . . . . The successful persuasion of other advertisers to include mushrooms in the advertising of their own products . . . . . The feeding of information to over 2,000 Cooking Demonstrators, Schools and other educators . . . . . The judicious placing of sample packages of mushrooms where they would do most good . . . . . The exhibition and sale of mushrooms at the Food Fair

at Olympia, where many other exhibitors were also persuaded to use mushrooms in their cookery demonstrations.

All of this and much else has been achieved. Its worth, at commercial advertising rates, has been estimated by the head of a well-known advertising firm as running into hundreds of thousands of pounds.

Yes, you may well be proud of your co-operative effort though certainly not complacent. Publicity is a snowball that gathers weight as it proceeds. As the coming year's effort is added to the past year's achievements the weight of publicity will make itself felt still more fully. It will be a tough fight to keep up with and absorb this ever expanding production—to say nothing of the threatened possibility of reduced spending power of the general public—but it's a fight worth winning.

For our part, we of the Publicity Sub-Committee feel we are responsible for spending all the time, effort and ingenuity we can, in squeezing the last ounce of results out of every penny of the relatively modest funds available. So there is no room for complacency here either. We have great plans for the coming year and a determination to keep that snowball rolling!

1957 PUBLICITY FUND UNDER WAY

The appeal to the Mushroom Industry for contributions to the 1957 Publicity Fund is under way and contributions received this year up to 24th January, were:—

Salesmen:—	£	s.	d.
Francis Nicholls Ltd., Smithfield Market, Birmingham	157	10	0
P. J. Poupart Ltd., Covent Garden, London, W.C.	100	0	0
Wm. Artindale & Son Ltd., Castlefolds Market, Sheffield	21	0	9
Geo. Jackson & Co. Ltd., Smithfield Market, Birmingham	5	5	0
A. E. Phippen (Brentford) Ltd., Brentford	5	5	0
Marks & Co. Ltd., Covent Garden, London, W.C.	1	1	0

***Spawn Makers/Merchants:—**

H. Mount & Sons Ltd., Littlebourne, Canterbury.
W. Darlington & Sons Ltd., Southcourt Road, Worthing.
Monlough Food Production Co. Ltd., Ballygowan, Belfast.

*Amounts sent by spawn distributors via the Spawn Contribution Scheme are not for publication.

MR. V. L. BARROW

Mr. V. L. Barrow, B.Sc.(Agric.), has been elected to the Council of the Association of British Organic Fertilizers and attended his first meeting on 25th January. He is Managing Director of Messrs. Shirley Organics Ltd., of Vicarage Wharf, Battersea, S.W.11.

ARE YOU HERE ?*

This is the time of the year when some growers go into hibernation, not to be seen until next May; this is the Ground Hog type; he roams the road all summer and goes into his hole for the winter.

Then there are other types—

Eager Beaver—Looks around and sees how he is picking and checks the returns and immediately orders compost for a refill.

Old Buck—Dribbles out alms to waiting creditors with a " I told you not to worry " attitude.

Benevolent Family Type—Blows his top on clothing for the family and stocks up on pantry items. " We eat again this winter."

Devil May Care Guy—Orders a new car, let the chips fall where they may.

Conservative Chap—Hauls returns to the bank, doesn't pay a soul until they holler bloody murder.

Lover Boy—Buys his wife a mink coat or diamond ring as peace offering for a torrid summer.

Helpful Henry—Loans first returns to a no-good son-in-law who will squander same on helpless daughter.

Real Conscientious Type—Decides to pay three year old coal bill.

" 400 Class Potential "—Throws a party for the benefit of future standings in the chosen circle.

Old Timer—Acts the same as he did thirty years ago, hauls it to the bank and leaves it there.

No Crop Joe—I told you so, wait until next year and watch me go.

Four Pound Pete—Let 'er rip, I've got me a " Pip " and Away we go!

Beginner—I've been chewing my nails since spawning, think I'll come through all right?

*The above is reproduced from the *American Mushroom Industry News*, published monthly by the American Mushroom Institute. No apology is made for this somewhat light-hearted but so very true sizing up of the various types of mushroom growers in a short series of thumbnail sketches. All men may or may not be equal but certainly they are remarkably similar. The language is, perhaps, a little on the strong side in one particular instance but, from a literary point of view it could be so very, very, correct !—ED.

A.M.I. News, 20 West State Street, Avondale, Pa., U.S.A., 3 dollars (21/6d. approx.) per year.

CORRESPONDENCE

STILL HOLDING

I am glad to report that " Beginner's Luck " still holds and that all goes well, with just over 1 lb. per sq. ft. from the first two flushes—in standard fish trays stacked open brickwork fashion.

Detailed results so far indicate that cropping may be comparable to the shelf bed layout of equivalent compost weight. The air-bed ratio is around 3·5 and there is continuous forced air circulation.

GROWERS
AND
RESEARCH

MYCO MUSHROOM LABORATORIES
ROYDON, ESSEX
3rd December, 1956.

Dear Sirs,

We enclose herewith some photographs showing your new Feechen White Grain Spawn.

This was spawned on the 19th October, and run at a temperature of 65°F. As you can see from the photographs the run is unequalled, taking into account that these photographs were taken on the 31st October. The spawn was cased after twelve days run, and picking commenced three weeks after casing. We like to point out that if the spawn is run at 75°F. casing can be done in ten days; this we shall be doing on the next order.

Please put on order 25 cartons so we can truly give it a more intensive test. By the results obtained from the sample order we shall not regret it.

Yours faithfully, (Myco Mushroom Laboratories),
Signed J. C. Cilia, B.Sc. (Microbiology).

Get results—FEECHEN WHITE GROWERS DELIGHT

98% of the Growers in Eire are using Feechen White Spawn
Now considered the most up-to-date Grain Spawn plant in Britain

R. C. DARLINGTON

WILLOW LABORATORIES

HASTINGWOOD - HARLOW - ESSEX

'Phone any time : POTTER STREET 138 (4 lines)

Eelworms. I was fortunate in being given an excellent sample of infected used compost from a well-known and greatly respected eelworm producer! Half the sample was peak-heated in the new house (8 hours with air temperature 132°—140° F.). Liquid extract from both the untreated compost and treated (peak-heated) material was sprayed on the casings of two experimental jars of grown mushroom mycelium which had completed two flushes. Some members saw these specimens at Eastbourne after about five weeks infection. I can assure you to-day, after about 15 weeks, the jar with peak-heated extract is still clean and healthy whereas the grey mycelium in the other has almost disappeared.

Parallel with the experimental jars I "infected" (soon after spawning) one tray in the new house with the remaining peak-heated compost. I gladly report that this tray did ·9 lb. per sq. ft. in two flushes and looks quite healthy and good for more flushes.

In case you think me particularly brave—or foolish!—I hasten to say that the microscope was in regular use at all stages.

Records. Records are always fun, I think. I am pleased with two special trays* (both are double depth with 10" of compost) which have done just over 2 lb. per sq. ft. on the first and second flushes. In particular one of the trays produced all its mushrooms from less than half its bed area. It is too long a story for this letter but the result on this tray has been that only about 40% of the casing had time to fill properly with mycelium and only this part, so far, has produced mushrooms at about 5 lb. per sq. ft. in two flushes! Tom Figgis.

*Latest information is that these trays have now done 3·9 and 3·3 lb. respectively in 8 weeks and they are still "going strong"—Ed.

ARE YOU ONE?

The number of completed questionnaires returned to the Glasshouse Crops Research Institute who, in the form sent out with the November (1956) Bulletin requested vital information in order to plan mushroom research at the Institute, has been quite disappointing and, when the *Bulletin* last enquired, fewer than 100 forms, or about 34% only, had been returned.

Mr. F. W. Toovey, Director of Research at Littlehampton, emphasised during his talk at the Eastbourne Conference how important it was that these questionnaires should be completed and returned as soon as possible.

Now then gentlemen, all 66 per cent. of you. Fill these questionnaires in please, sign them and return them to Littlehampton without further delay. Research, in all its aspects, is of vital importance to the industry. An opportunity exists now for something to be done—it should not be missed for the sake of a little effort and a little time.

Please fill that questionnaire in now—and sign it. The closing date for returning questionnaires is 16th February, 1957.

THIS PAGE IS
RESERVED

For the names of those firms and individuals who contribute to the

MGA
PUBLICITY FUND

First list of the 1957 Contributors appears elsewhere in this issue and their names will be promoted to this page next month

NEW SUBSCRIPTION RATES

I have to-day arranged for my subscription rate of 10 gns. per annum to be paid to the MGA.

I consider this a very high subscription for the return we get, because there is not at present any functioning research station.

Publicity expenses are contributed to by the spawn levy, so other than the annual mushroom exhibition and the journal, what other benefits does one obtain for the 10 gns.?

If the MGA could battle successfully with the undermentioned problems, then the 10 gns. subscription would be worthwhile—at present I truly think it is money wasted, or almost wasted.

(a) **Lime Subsidy:** Growers who use chalk as their casing medium and have not sufficient acreage of land on which to spread it afterwards, cannot fairly claim the subsidy—therefore the grower who has a mushroom farm only and no agricultural farm loses badly. The lime used by the mushroom growers in this case goes to produce food but he gets no lime subsidy. If the MGA had this put right it would be doing a useful service.

(b) **Returned mushroom baskets:** An appalling waste of timber to the country and money to the mushroom growers occurs by the fact that mushroom chips are not returnable by custom of the trade.

Now that baskets cost so much surely the time has come for these baskets to be made returnable. The appropriate body to battle with this problem surely is the MGA (I do get some baskets back from as far away as Newcastle by private arrangement and they arrive back in very good order, therefore it can be done.)

(c) **Commission charged by wholesalers:** At present the incentive to a wholesaler is to sell a lot of mushrooms at a low price rather than work hard to sell fewer mushrooms at a higher price. He is of course out to make as much commission as he can for his firm. The following examples will I hope show what I mean, viz.—based on 10% commission:

20 lb. sold at 4/6	Allows Commission of	9/2
30 lb. sold at 4/-		11/10½
40 lb. sold at 3/6		14/2
60 lb. sold at 3/-		18/-

It is beyond me to suggest a better solution to this problem, but it is worth, I think, the careful consideration of the MGA to see if commission could fairly and satisfactorily be linked to quantity and price of mushrooms sold, instead of only being linked to the price.

The three points mentioned above must affect many members of the MGA and surely therefore it is the job of the MGA to present the facts to the appropriate people and to keep at them until some satisfactory solution is found.

I started growing mushrooms in 1948 and have always been and still am an ardent if silent supporter of the MGA, but with ever increasing expenses the time has come when one must get value for money, and 10 gns. a year seems a lot to pay for little or no service.

A. S. G. Douglas (Brig.)

SODIUM PENTACHLOROPHENATE

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CLEAN TRAYS

AND

BETTER MUSHROOMS

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GET SPAWN GROWTH OFF TO A FAST START

——make a simple test for ammonia before planting spawn

Ammonia Indicator Test Kit—$2·75 post paid

(*Kit consists of bottle of indicator, dropper and rubber bulb; also a supply of filter paper and stainless wire. Also complete directions*)

Supply enough to last average grower several years for only $2·75 post paid

STOLLER RESEARCH CO.

P.O. BOX 1071 - - SANTA CRUZ, CALIFORNIA

PHORACIDE*

The new insecticide for mushroom insects

Now thoroughly tested and in use in mushroom houses for one year

PHORACIDE HAS DONE A WONDERFUL JOB IN CONTROLLING FLIES AND GNATS FOR CALIFORNIA MUSHROOM GROWERS

Read what California growers say about PHORACIDE:

Nick Masciantonio of San Jose (formerly of Penna., and Syracuse, N.Y.) was amazed how quickly he got results with PHORACIDE. " I'm going to tell my cousin and brother-in-law in Penna., how good Phoracide is."

L. D. Mathew of Santa Cruz tried everything, but obtained control only with PHORACIDE. After spraying PHORACIDE he swept several inches of gnats out of the walks.

Peter Kerrigan of Aptos bought a Fly Trap and saw for himself the heavy catch of flies before spraying with PHORACIDE. But after using PHORACIDE, " not a blinking gnat."

Joe Carnesecea of Campbell said the flies were so thick that he could not see the light when he lit the electric bulb. But after spraying PHORACIDE, " just a few sometimes."

Get the same good results as these California Growers—use PHORACIDE

Don't let the gnat eat away your earnings.

Spray immediately after spawning and again after casing.
Prevent the gnats from getting started in the beds.

How PHORACIDE is used:—

PHORACIDE is sprayed only around doors, ventilators and walls. No spraying on mushroom beds at all! So there is no residue on mushrooms or danger to consumer. PHORACIDE has been registered and accepted for such application by the U.S. Dept. of Agriculture (Complete directions on label of container).

PHORACIDE IS NOW SHIPPED IN STEEL DRUMS WITH SPECIAL LINING TO PRESERVE PHORACIDE INDEFINITELY
(drum sizes 1, 5, and 50 gallons)

PHORACIDE COSTS LITTLE FOR THE VALUE RECEIVED:

Concentrate costs $13·50 per gallon in ONE gallon drums, and $12·50 per gallon in FIVE gallon drums, FOB Santa Cruz. (Shipping cost to East Coast is about one dollar per gal.)

One gallon of concentrate makes 10 to 15 gallons or over 100 lb. of spray material. So cost is only about 12 cents per pound of spray.

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Published by the Mushroom Growers' Association, Agriculture House, 25-31 Knightsbridge, London, S.W.1 and printed by W. S. Maney & Son Ltd., Russell Street, Leeds 1